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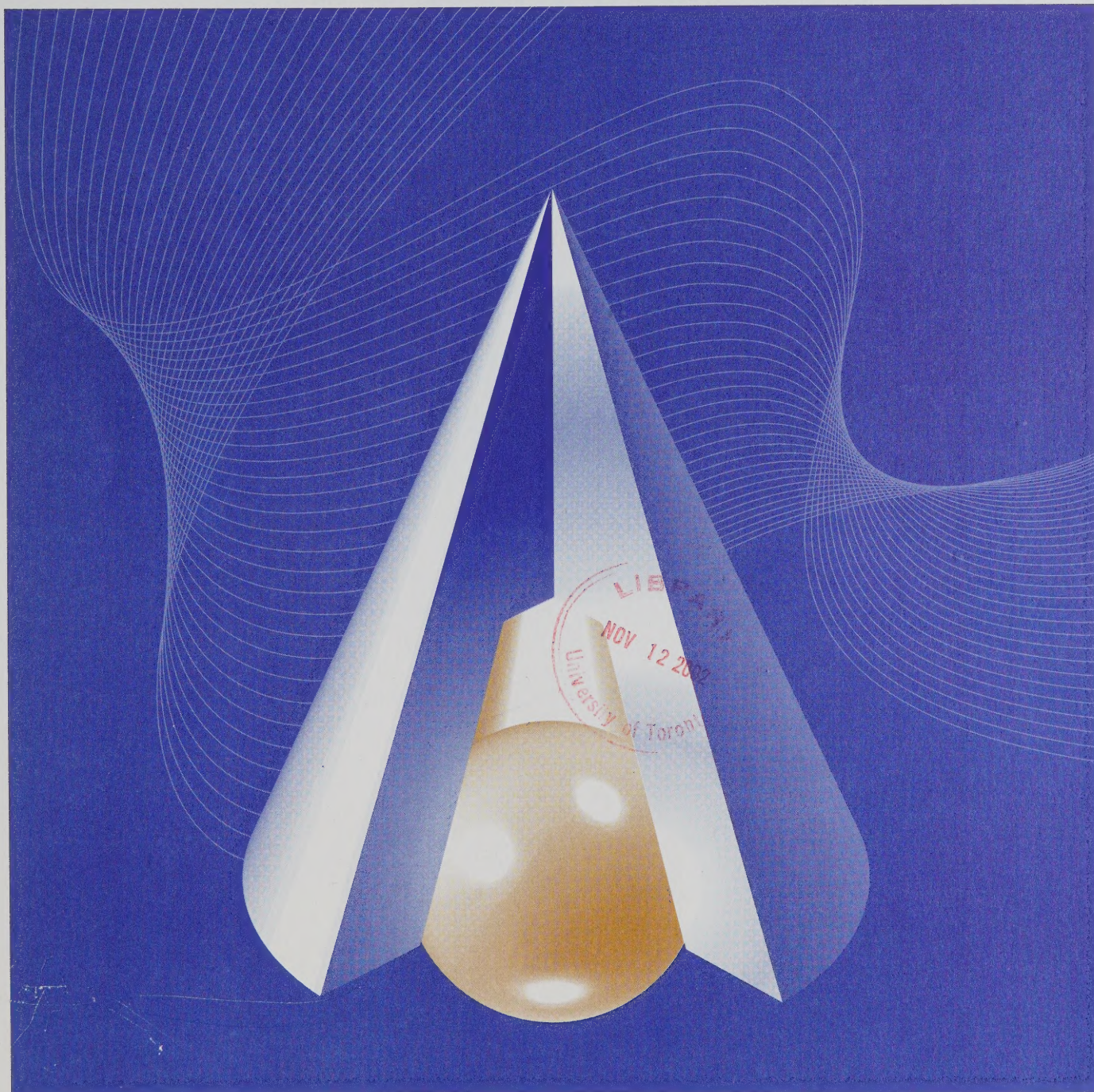
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*Does Parent or Child Know Best? An Assessment of Parent/Child Agreement in the Canadian National Longitudinal Survey of Children and Youth*

by Lori Curtis, Martin Dooley and Shelley Phipps

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An Assessment of Parent/Child Agreement  
in the Canadian National Longitudinal Survey of  
Children and Youth**

by

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## ***Abstract***

We use data from the Canadian National Longitudinal Survey of Children and Youth to address two questions. To what extent do parents and children agree when asked identical questions about child well-being? To what extent do differences in their responses affect what one infers from multivariate analysis of the data? The correspondence between parent and child in the assessment of child well-being is only slight to fair. Agreement is stronger for more observable outcomes, such as schooling performance, and weaker for less observable outcomes, such as emotional disorders. We regress both sets of responses on a standard set of socio-economic characteristics. We also conduct formal and informal tests of the differences in what one would infer from these two sets of regressions.

**Keywords:** Child Well-being, Parent-Child Assessment Agreement, Socio-economic status

**JEL Classification:** 900, 913, 914



Our data are drawn from Cycles One and Two of the NLSCY which is a representative national sample of Canadian children who were aged 0 to 11 years at the first interview in 1994 and aged 2 to 13 years at the second interview in 1996. In each interview, a series of identical questions related to child well-being was asked of both the children age 10 to 11 (at the time of the interview) and the person most knowledgeable about the child who was the mother in 90 percent of the cases and the father in almost all of the remainder. We excluded the few observations in which the person most knowledgeable was not the child's parent and refer, henceforth, to the parent rather than the person most knowledgeable.

We are limited in the extent to which we can use the longitudinal nature of the data. This is because, as noted above, the samples for whom we have responses to the same questions from both parent and child are those children who were age 10-11 in 1994 and the children who were age 10-11 in 1996. The strategy of the NLSCY is to start asking questions of the child at age 10 and to cease asking identically worded questions of the parent after the children reach age 12. Age 10-11 is the only window in which we can observe responses to the same questions from both groups. In this paper, the only use we make of the longitudinal nature of the data is to use family income from both 1994 and 1996 to construct our income measures (and, hence, limit our sample to families for whom income was observed in both years). In future work, we plan to use more fully the following aspects of our data: the two sets of responses to similar questions from children who were age 10-11 in 1994 and 12-13 in 1996 (but not from their parents in the latter year); and the two sets of responses to similar questions from parents who had children age 8-9 in 1994 and 10-11 in 1996 (but not from their parents in the earlier year).

We further limited the sample in the following ways. The NLSCY contains siblings and we (randomly) selected only one child per family. There are few lone fathers in the sample and they may differ from lone mothers, in ways both economic and non-economic, that are difficult to measure in a two-wave (thus far) panel. Hence, we limited our sample to the children of lone mothers and couples. Finally, for each outcome, we use a common sample for both parent- and child-responses. For the sake of precision, however, we use all available observations for each outcome.<sup>3</sup> As a result, the number of observations differs slightly across outcomes but is the same across respondents for any given outcome.

The top panel of Table 1 provides descriptive statistics for our sample. We have chosen to study five different aspects of children's health/well-being: conduct disorder, hyperactivity, emotional disorder, indirect aggression, property offences and success at school.<sup>4</sup> These five outcomes were chosen to satisfy several criteria: 1) we have outcome responses from both parent and child; 2) the outcomes are important indicators of the current and future well-being of the child; 3) the outcomes provide varying degrees of observability; and 4) they are outcomes which have been studied by other researchers (e.g., Kohen, Hertzman and Wiens, 1998; Lefebvre and Merrigan, 1998). The five non-schooling outcomes are composite scores which are constructed from answers to a series of

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<sup>3</sup> None of our basic conclusions, however, are changed if we use a common sample for all outcomes.

<sup>4</sup> We do not include measures of physical health since we do not have any assessments of physical health provided by both the parent and the child.



questions concerning behaviour and feelings.<sup>5</sup> See Table 1-A for details concerning the construction of these scores. They range in value from a minimum of zero (no reported problems) to a maximum which varies from ten to sixteen. For example, the property offences score is constructed from answers to the following six questions: Does the child: 1) destroy his/her own things? 2) steal at home? 3) destroy things belonging to his/her family or to other children? 4) tell lies or cheat? 5) vandalize 6) steal outside the home? We felt that these are all questions that most 10 or 11 year-old children are capable of answering.

The remaining outcome is the answer to a single question about the child's overall performance at school based on report cards — one measure of human capital acquisition. The responses range in value from one (doing very well) to five (doing very poorly). Our sets of outcome measures include almost all of those which are based on identical questions posed to the parent and 10 or 11 year-old child. It also includes outcomes which appear to be less readily observable by the parent, such as emotional problems, and outcomes which appear to be more readily observable by the parent, such as schooling success based on report cards.

The means in columns (2) and (3) of Table 1 indicate that 10 and 11 year-old children are generally perceived to be doing well both by themselves and by their parents. The standard deviations indicate, however, that there is substantial dispersion around both sets of means. The final three columns of the top panel indicate the proportion of cases in which the parent and child report an identical score, the proportion in which the parent has a higher score (more problems except for schooling), and the proportion in which the child has a higher score. In the case of conduct disorders, for example, there is agreement in 36 percent of cases. In 31 percent of the observations, the parent's score is larger than the child's and, in such cases, the mean difference is 2.0 compared to a mean (absolute) difference of 1.2 over all observations. The child's score is larger in 33 percent of the observations and the mean difference in such cases is 2.2. Column (6) indicates that there is disagreement in the majority (often a large majority) of observations for each outcome. Columns (7) and (8) indicate that, in cases of disagreement, it is the child who is more likely to report greater problems. Hence, disagreement does not occur simply because children are unwilling to report their problems.

Economists have very limited experience with multiple-respondent studies but researchers in other disciplines have developed various measures of inter-rater agreement. A common measure is the kappa statistic which was proposed by Cohen (1960; 1968) and has been used by Grootendorst et al. (1997), Herjanic and Reich (1982) and Reich et al. (1982) among many others. This statistic indicates the extent to which agreement exceeds that which is expected by chance. The simplest (unweighted) kappa statistic is equal to  $[p_a - p_e] / [1 - p_e]$  where  $p_a$  is the proportion of cases in which the parent and child agree and  $p_e$  is the proportion of cases in which agreement is expected by chance. Hence, the kappa statistic equals zero if the actual agreement between respondents is that expected by chance and is equal to one if there is perfect agreement. Landis, J.R et G. G. Koch (1977) suggest the following interpretation of intermediate kappa values:

<sup>5</sup> We have conducted our analyses using answers to specific questions. We found even less parent/child agreement than with the composite scores but the qualitative results are similar. We focus on the composite scores to be consistent with the literature and to save space.



## Kappa Statistic Strength of Agreement

less than 0	poor
0.00 - 0.20	slight
0.21 - 0.40	fair
0.41 - 0.60	moderate
0.61 - 0.80	substantial
0.81 - 1.00	almost perfect

The unweighted kappa statistic gives equal weight to all disagreements large and small. An alternative is the weighted kappa statistic which gives a greater weight to larger differences between respondents (Stata Corp 1999). We present both statistics but focus on the weighted version in our discussion.

The bottom panel of Table 1 indicates that agreement between parent and child is relatively weak. The simple correlations between parent and child assessments of child outcomes are reported in column (2). These range from a low of 0.22 for indirect aggression to a high of 0.49 for schooling performance. To put these within-outcome, across-respondent correlations in Table 1 in perspective, we also calculated the within-respondent, across-outcome correlations. The latter (not shown here) are generally larger than the former. For example, the correlation between parent and child in Table 1 is only 0.28 for conduct disorder and 0.40 for hyperactivity. But the correlation between hyperactivity and conduct disorder scores is 0.46 for the parent-responses and 0.47 for the child-responses. Furthermore, we find that all of the within-respondent, across-outcome correlations based on the child-responses are similar in magnitude to those based on parent-responses. This implies that children are not just providing random answers. The kappa statistics also indicate weak levels of agreement.<sup>6</sup> The weighted kappa statistics are larger than the unweighted ones which implies that small differences in outcome scores are more common than big differences. The ranking of the outcomes by kappa statistic is not affected by weighting with the notable exception of hyperactivity which has the lowest unweighted kappa statistic but the second highest weighted kappa statistic. Agreement is strongest in the case of schooling performance. This weighted kappa is 0.37 which is 'fair' by the above classification scheme and 'reasonable' according to the scheme of Reich et al. (1982). This relatively high level of agreement may be due in part to the fact that this question refers specifically to a fairly clear indicator — report cards. We obtain the lowest (weighted) kappa statistics for indirect aggression (0.14) and emotional disorder (0.18). These scores rely on questions which may be ambiguous or refer to behaviour and feelings which are more difficult to observe (see Table 1-A for more details).

We have also calculated kappa statistics for each of the individual questions making up the five scores which we use. Agreement on any one specific question tends to be lower than agreement on the overall score. We also find that agreement between parent and child is higher on questions concerning more readily observable behaviour. Both of these results are consistent with the medical literature (Reich et al. 1982). The level of our kappa statistics, however, is generally lower than that

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<sup>6</sup> Note that the expected level of agreement need not be the same for outcomes which have the same range of outcomes such as hyperactive and emotional disorders. The reason for this is that the sample distributions are used to calculate the expected agreement. See Cohen (1960) for more details.



reported by health scientists (see references in footnote 2). This may be due to the fact that our data is a national, random sample of children aged 10 and 11 whereas medical studies typically include only children who have either visited a pediatric clinic or been referred for psychiatric evaluation or consultation. These non-random samples in the medical literature are likely to consist disproportionately of children in whom a possible problem has been noted and discussed by both respondents.

### *III. Do the Inferences from Multivariate Analysis Change with the Respondent?*

Disagreement between parent and child does not necessarily mean that the two sets of responses will result in different inferences from multivariate analysis. For most policy purposes, our interest is in which socio-economic characteristics are associated with better or worse outcomes for children. In this section, we regress both parent and child responses on a set of socio-economic variables commonly used in studies of child health and well-being. These include lone-mother status, family income, the age and education level of the parent, gender of the child and family size (the number of persons in the family).

We experimented with a variety of specifications for income and education. In the case of income (averaged between income-years 1993 and 1995), we estimated models with income in linear form, equivalent income<sup>7</sup>, a single dummy variable for poverty status<sup>8</sup>, and a series of dummy variables for various low-income categories (controlling for family size). There are relatively few qualitative differences among the results provided by these various specifications. Below we present the estimates obtained with the dummy variables for various low income categories. We also report estimates of the specification for parental education which was empirically the most important, namely, whether or not the parent had a high school degree<sup>9</sup>.

Our empirical model is clearly quite rudimentary but we believe that it is adequate for assessing the extent to which the use parental assessments, as compared to child assessments, of child well-being will influence the inferences made from multivariate analysis. Given our rudimentary specification, we have chosen to report OLS estimates (which also facilitates more formal tests of statistical

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<sup>7</sup> We calculated equivalent income by assigning an equivalent family size weight of one to the first adult, a weight of 0.7 to each subsequent adult, and a weight of 0.5 to each child.

<sup>8</sup> Low-income refers to equivalent income below one-half of the median equivalent income.

<sup>9</sup> We also estimate rudimentary models on the absolute level of disagreement between parent and child. Explanatory variables were lone mother, income, education, sex of child, age of parent and number in household. There was little consistency in which variables were associated with levels of disagreement between parent and child. Lone motherhood was associated with higher levels of disagreement for conduct disorder, emotional disorder and property offense. Low income was associated with more disagreement between parent and child for conduct disorder, property offense and schooling problems. Parent having less than a high school degree was related to increased disagreement for emotional disorder, property offense and schooling. Number in household was associated with more disagreement for conduct disorder, and property offense and less disagreement for hyperactivity. Female child was related to higher levels of disagreement for conduct disorder and hyperactivity and lower levels for property offense and finally, increasing parental age was associated with less disagreement for emotional disorder, indirect aggression, and property offenses.

difference across respondents). In results not shown here, however, we have found that an alternative specification for limited dependent variables, the tobit function, yields similar qualitative conclusions. Finally, as is common in the literature, we measure all of the outcomes, save that for schooling (which is a response to only one question), in standardized form in order to facilitate the comparison of the magnitude of the coefficients across outcomes.

Regression results are presented in Table 2. Note, first, that the R-squared statistics are all less than 0.10, but such values are not uncommon in this literature. The coefficient estimates almost always have the same (and expected) sign in the parent- and child-regressions. We first consider the issue of statistical significance followed by that of economic significance. The final column for each outcome presents the P-values from a formal test of the equality of individual coefficient estimates across the parent- and child-regressions. That is, we estimate a Seemingly Unrelated Regression system of equations, with parent and child regressions as the two equations in the system, and test whether individual coefficients are the same across equations. The following discussion assumes a P-value of .05 as the boundary between significant and non-significant.

We are unable to reject the null hypothesis of no difference in three-quarters of the cases, a result which reflects, in many instances, the large standard errors of our estimates. In the case of conduct disorder, we can reject the null in only one instance (the child's gender). We observe the most (three) rejections of the null hypothesis (when categorized by outcome) in the case of indirect aggression and schooling. Recall that indirect aggression has the lowest kappa statistic and schooling performance has the highest one. This exemplifies the point that response agreement is not the same thing as agreement between multivariate coefficient estimates.

The extent of formal coefficient agreement does not differ greatly by independent variable. We are able to reject the null hypothesis of coefficient equality for only one outcome in the case of lone-mother status and in the case of each set of income coefficients. Rejection of the null is most frequent (three outcomes) in the case of family size.

We suspect that one of the first things which researchers do upon first encountering a table of regression results is to disregard those coefficients which are not significantly different from zero at, typically, the 1 or 5 percent levels. Hence, one informal (and different) test of coefficient agreement is to check how often the coefficients in the two regressions agree in the sense of being both significant (at say 5 percent) or both insignificant.

This informal test of coefficient equality yields coefficient agreement in about one-half of the cases. (Some of this informal agreement, of course, is also due to large standard errors.) In the case of conduct disorder, for example, the coefficients in the two regressions are either both statistically significant at 5 percent or both not statistically significant at 5 percent in five instances (excluding the constant). There is little difference by outcome. In each case, there is agreement for three to five (out of a possible eight excluding the constant) pairs of coefficients. Once again, this is unlike the case of kappa statistics which indicated considerable variation among outcomes in the extent of parent-child agreement.

There are considerable differences when viewed from the perspective of independent variables. The informal tests indicate agreement (between parental and child response estimates) for four or five pairs of coefficients (out of a possible six outcomes) in the case of lone-mother status, the income



dummies and child's gender. In the cases of parental age and schooling, family size, however, there is informal coefficient agreement for only one or two coefficients. We turn now to a consideration of the individual control variables and focus on the central question of whether or not one might draw substantially different policy inferences from the two sets of outcome measures.

We consider first the coefficient for lone-mother status. One of the most robust findings in the first generation of NLSCY research is that children living in lone-mother families have worse outcomes than do children living in two-parent families. See, for example, Dooley, et al. 1998.<sup>10</sup> This research is all based on the parents' responses from Cycle One of the data. We are interested to know if this persists when we use the children's own responses and two waves of income data. In Table 2, the lone-mother coefficients based on parental-scores are all significant save for property offences and indicate a difference of about 0.2 to 0.3 of a standard deviation in the outcome which has been characterized in the literature (Blau 1999 and Mayer 1997) as small to modest.<sup>11</sup> The lone-mother coefficients based on child-scores are significant in only three cases (hyperactivity, emotional disorder and schooling) but, when significant, are of similarly modest magnitude. If one accepts this characterization of these magnitudes as modest, then one can conclude that parent and child responses both yield the conclusion of not large.

Next consider the series of income dummy variables. When we use parent scores, one or both of the two low-income coefficients (less than \$20,000 and \$20,000 to \$40,000), is significant for conduct disorder, hyperactivity and property offence. For schooling, we get a significantly negative effect (better outcome) for income greater than \$60,000. We obtain similar results with the child scores except in the case of schooling where it is the dummy variable for income for \$20,000-\$40,000 that is significant. We note also that the magnitude of the (significant) income effects are in the range of 0.20 to 0.40 of a standard deviation (of the outcome) which is also comparable to that found by Blau (1999) and Mayer (1997). Here too, both parent and child responses yield the conclusion of not large.

There is also a considerable agreement in the case of child's gender. In general, girls have outcomes which are better than those of boys by 0.2 to 0.4 of a standard deviation as judged by either the parental or child responses.

Disagreement is frequent in the cases of parental schooling, parental age and family size. Using parental responses, the absence of a high school degree for (in most cases) the mother is associated with a significantly higher (worse) score of 0.1 to 0.25 of a standard deviation for each outcome save

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<sup>10</sup> The proper interpretation of this finding, especially in a single cross-section, is uncertain. For example, it may in part be a permanent low-income effect given that poor lone-mothers have longer spells of poverty than do poor couples. Furthermore, poor outcomes for children in lone-mother families may also reflect events which occurred prior to marital dissolution. For example, Kingston-Riechers (1998) found that 53% of women from dissolved first marriages reported physical abuse by their former partner, but that only 15% of currently married women reported physical abuse by their current partner. Marital dissolution may well be health-improving for children in abusive marriages contrary to what might be inferred from a superficial perusal of the evidence from cross-sectional data. The marital status of lone mothers in the NLSCY (never-married versus previously married) is masked unfortunately.

<sup>11</sup> We have not standardized the schooling outcome measure but the actual score does have a standard deviation of about 1.0.

conduct disorder. Using child responses, however, we obtain a significant coefficient only in the case of conduct disorder and schooling. In the case of parental age, the child responses yield only two significant effects and they are of opposite sign. The parental responses, in contrast, indicate that the parental age is positively and significantly associated with better outcomes in every case except schooling. Here too, though the magnitude of the effects is modest with an extra ten years of age being linked to a change of about 0.10 of a standard deviation. Disagreement is also common in the case of family size. The parental response but not the child response yields a significant coefficient for conduct disorder and hyperactivity. The opposite is true for property offences and schooling. An extra person is generally associated with a worse outcome but the difference is less than 0.1 of a standard deviation.

One reason why parents might rate child outcomes differently than do children is parental health status. Specifically, one effect of parental depression may be to perceive more problems in one's children than would a non-depressed parent with similar children. Of course, parental depression may also have real effects on children via both behavioural (less attentive parenting) and biological (genetic endowment) pathways.

The NLSCY does include several self-reported measures of adult health, one of which is a summary depression score derived from a series of questions concerning the parent's moods and actions. The mean value of this score is much higher for lone mothers than for parents (mostly mothers) from two-parent families and for poor parents than for non-poor parents.<sup>12</sup> We experimented with including this variable in our regressions and discuss the most relevant finding below but do not report the full set of estimates. Income and marital status may have a complex causal interrelation with parental depression. Satisfactory estimation of a more adequate model is clearly beyond the reach of this note.

The coefficient estimate for the depression score is significant ( $p$ -value = .01 or less) in each regression including those based on child-responses. This finding is consistent with the hypothesis that parental health has real effects on child well-being. The size of the effect is that an increase of about 0.20 of a standard deviation in the depression score leads to an increase about 0.1 to 0.5 of a standard deviation in the outcome score. In the cases of conduct disorder, emotional disorder and hyperactivity, the parental depression coefficient effect is much larger with parental responses than with child responses which is consistent with the hypothesis that part of the depression coefficient in the parent-regressions may be over-reporting of child problems by depressed parents. Finally, the inclusion of the depression score reduces (in absolute value) the size of the coefficients for lone-motherhood and low income but this change is larger in the parent-response regressions. This is consistent with the hypothesis that part but not all of the resulting differences in the coefficients (between the parent-regression and the child-regression) may be due to the greater incidence of parental depression in low-income and lone-mother families.

Another exercise which we undertook concerns measures of economic resources. Two waves of NLSCY income data are clearly better than one but fall far short of what one needs to estimate the

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<sup>12</sup> This score can range in value from 0 to 36 (higher is more depressed) and has a mean of 4.7 and a standard deviation of 5.5 in our sample. The mean is 7.9 for lone mothers, 4.3 for married mothers and 3.5 for married fathers. The mean is 6.8 for poor parents (income less than the Statistics Canada Low Income Cutoff) and 4.1 for non-poor parents.



impact of long run or permanent variation in family income. The NLSCY did ask two questions, the answers to which provide indicators of family assets. Does the family own its home (no questions concerning debts though) and does the home need major repairs as judged by the interviewer? We included these variables in our regressions and the estimated impact of these variables (not shown here) depends very much on which set of responses is used. Using the parental responses, home ownership is always associated with better outcomes although once again of a modest size, namely 0.10 to 0.3 of a standard deviation.

The need for major repairs is associated with worse outcomes in the case of conduct, emotional and hyperactive disorders. The inclusion of these variables also tended, quite understandably, to lower the magnitude and statistical significance of the lone-mother and low-income coefficients especially the former. In the case of child-responses, however, the coefficients for these two asset measures are never significant and have little impact on the other estimates. It is unclear to us at present why these asset measures should have such different effects in our two sets of regressions.

#### *IV. Conclusion and Summary*

We have used data from the Canadian National Longitudinal Survey of Children and Youth to address several questions which are somewhat novel. To what extent do parents and children agree when asked identical questions about the health and well-being of the children? And to what extent do the differences in their responses affect the inferences which one makes from a multivariate analysis of the data using standard socio-economic characteristics of the family?

Our first conclusion is that the correspondence between parent and child in the assessment of the child's well-being was only slight to fair as judged by a standard measure of inter-rater agreement, the kappa statistic. The data do indicate, however, that the disagreement does not arise from the unwillingness of children to report problems or from the fact that they provide inconsistent or random answers. Agreement tends to be stronger for outcomes which are more readily observable, such as schooling performance based on report cards, and tends to be weaker for outcomes which are less readily observable, such as emotional disorders and indirect aggression.

Our second conclusion is that agreement between the coefficients in the parent- and child-regressions was stronger than might have been expected in light of the weak correspondence between the two sets of outcome measures. A formal test of coefficient equality yielded a conclusion of no difference in three-quarters of our cases and the same was true in about fifty percent of the time when we used a less formal test of agreement. The extent of agreement did not vary much by outcome but it did vary by control variable. Coefficient agreement (between parent and child response regressions) was strongest in the case of the child's gender and was common in the case of lone mother status and income. Disagreement was frequent, however, in the cases of parental schooling, parental age and family size. These last three variables typically indicated significant associations in the parent-response regression, but not in the child-response one.

Our multivariate analyses, however, almost invariably yielded coefficient estimates which we would judge to be in the range of small to moderate effects. The data yield no evidence that would suggest large effects of any of our variables. This last conclusion is based on only two cycles of data from

the NLSCY but it is consistent, we believe, with the findings from much longer, non-Canadian longitudinal data sources. If it is true that there are significant differences in the way in which children and adults view the children's well-being and, in some instances, differences in the inferences which one makes from multivariate analysis, then which point of view is more appropriate? We believe the answer depends on the purposes of the investigator. The adult's perception will motivate the adult's behaviour with respect to discipline, concern, attention and even monetary expenditures. For the analysis of such behaviour, it is clearly the parent's ratings that matter most. However, to the extent that we are interested in measuring and improving child well-being, then the child's own perception of his or her state grows in importance and, at the very least, should not be ignored as has commonly been the case in socio-economic studies to date.



**Table 1 – Pooled - Cycle One (1994) and Cycle Two (1996) Data**

**Child Outcomes: Descriptive Statistics and Measures of Agreement Between Parent-Reports and Child-Reports**

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Mean Parental Score (S.D.)	Mean Child Score (S.D.)	Range	Number of Observations	% Parent = child	% Parent > child (Mean Diff.)	% Parent < child (Mean Diff.)
Conduct Disorder	1.2 (1.7)	1.3 (1.8)	0-12	1694	.36	.31 (2.0)	.33 (2.2)
Hyperactive Disorder	4.0 (3.5)	4.2 (3.0)	0-16	1670	.13	.41 (3.1)	.46 (3.2)
Emotional Disorder	3.1 (2.9)	3.9 (3.0)	0-16	1691	.15	.33 (2.7)	.52 (3.3)
Indirect Aggression	1.4 (1.7)	1.9 (2.0)	0-10	1634	.24	.28 (2.0)	.48 (2.3)
Property Offence	0.6 (1.0)	0.9 (1.3)	0-12	1670	.48	.21 (1.4)	.31 (1.8)
School Performance	1.8 (0.9)	1.9 (0.8)	1-5	1771	.50	.21 (1.2)	.28 (1.1)
	Unweighted Kappa Scores (any difference = disagree) *			Weighted Kappa Scores (greater difference = larger weight) *			
	Correlation	Actual Agreement	Expected Agreement	Kappa	Actual Agreement	Expected Agreement	Kappa
Conduct Disorder	.28	.38	.31	.10	.89	.86	.18
Hyperactive Disorder	.40	.12	.10	.03	.83	.77	.23
Emotional Disorder	.31	.15	.11	.04	.83	.80	.18
Indirect Aggression	.22	.26	.22	.04	.83	.80	.14
Property Offence	.25	.49	.39	.15	.92	.90	.20
School Performance	.49	.51	.32	.27	.85	.77	.37
* less than 0 = poor, .00-.20 = slight, .21-.40 = fair, .41-.60 = moderate, .61-.80 = substantial, .81-1.00 = almost perfect.							

**Table 2 – Pooled - Cycle One (1994) and Cycle Two (1996) Data  
Regressions of Parent-Scores and Child-Scores on Socio-economic Characteristics**

	Parent-score		Child-score		Parent=Child <sup>a</sup>	Parent-score		Child-score		Parent = Child <sup>a</sup>
	Coeff. (st. err)	P-value	Coeff. (st. err)	P-value	P-value	Coeff. (st. err)	P-value	Coeff. (st. err)	P-value	P-value
	<u>Conduct Disorder</u>					<u>Hyperactivity</u>				
Lone Mother	0.217 (0.062)	.00	0.107 (0.066)	.10	.16	0.209 (0.069)	.00	0.244 (0.096)	.00	.66
Income < \$20,000	0.244 (0.074)	.00	0.210 (0.079)	.01	.72	0.139 (0.082)	.09	0.239 (0.083)	.00	.27
Income \$20,000- \$40,000	0.100 (0.046)	.03	0.145 (0.049)	.00	.43	0.126 (0.051)	.01	0.167 (0.052)	.00	.47
Income > \$60,000	0.004 (0.039)	.92	0.017 (0.041)	.68	.78	0.004 (0.043)	.93	0.010 (0.044)	.82	.90
Parent Lacks HS Degree	-0.058 (0.048)	.23	0.020 (0.513)	.00	.20	0.219 (0.054)	.00	0.094 (0.054)	.08	.04
Girl	-0.236 (0.032)	.00	-0.420 (0.034)	.01	.00	-0.345 (0.035)	.00	-0.270 (0.036)	.00	.06
Parental Age	-0.013 (0.003)	.00	-0.009 (0.003)	.00	.22	-0.008 (0.004)	.02	-0.005 (0.004)	.18	.42
Family Size	0.062 (0.015)	.00	0.086 (0.016)	.64	.25	-0.025 (0.017)	.13	0.054 (0.017)	.00	.00
Constant <sup>b</sup>	0.149 (0.147)	.31	0.074 (0.157)	.47		0.386 (0.164)	.02	-0.019 (0.166)	.91	
Adjusted R <sup>2</sup> (# obs)	0.04		0.06		3079	0.05		0.04		2927
	<u>Emotional Disorder</u>					<u>Indirect Aggression</u>				
Lone Mother	0.256 (0.077)	.00	0.346 (0.071)	.00	.30	0.170 (0.076)	.03	-0.025 (0.076)	.74	.04
Income < \$20,000	0.017 (0.092)	.85	-0.083 (0.085)	.33	.34	0.112 (0.089)	.21	0.076 (0.088)	.39	.75
Income \$20,000- \$40,000	-0.043 (0.056)	.45	0.002 (0.052)	.97	.49	0.001 (0.057)	.99	0.020 (0.056)	.72	.78
Income > \$60,000	-0.022 (0.048)	.64	-0.115 (0.045)	.01	.09	-0.011 (0.048)	.81	0.025 (0.048)	.61	.55
Parent Lacks HS Degree	0.183 (0.059)	.00	0.068 (0.055)	.22	.09	0.260 (0.059)	.00	-0.010 (0.058)	.87	.00
Girl	0.066 (0.039)	.09	0.063 (0.036)	.09	.94	0.236 (0.039)	.00	-0.010 (0.039)	.80	.00
Parental Age	-0.011 (0.004)	.00	0.003 (0.004)	.36	.00	-0.012 (0.004)	.00	-0.005 (0.004)	.21	.15
Family Size	-0.038 (0.019)	.04	0.075 (0.017)	.00	.00	-0.003 (0.019)	.85	0.011 (0.019)	.56	.54
Constant <sup>b</sup>	0.705 (0.182)	.00	-0.424 (0.169)	.01		0.451 (0.181)	.01	0.171 (0.179)	.34	
Adjusted R <sup>2</sup> (# obs)	0.02		0.02		2995	.03		.01		2908



**Table 2 (continued) - Pooled - Cycle One (1994) and Cycle Two (1996) Data**  
**Regressions of Parent-Scores and Child-Scores on Socio-economic Characteristics**

	Parent-score		Child-score		Parent=Child <sup>a</sup>	Parent-score		Child-score		Parent = Child <sup>a</sup>
	Coeff. (st. err)	P-value	Coeff. (st. err)	P-value	P-value	Coeff. (st. err)	P-value	Coeff. (st. err)	P-value	P-value
	<u>Property Offence</u>					<u>Schooling</u>				
Lone Mother	0.049 (0.054)	.36	0.096 (0.072)	.19	.56	0.144 (0.060)	.02	0.240 (0.055)	.00	.10
Income < \$20,000	0.376 (0.065)	.00	0.291 (0.087)	.00	.39	0.111 (0.070)	.11	-0.023 (0.065)	.73	.05
Income \$20,000- \$40,000	0.175 (0.040)	.00	0.164 (0.053)	.00	.85	0.052 (0.044)	.24	0.095 (0.041)	.02	.33
Income > \$60,000	0.020 (0.034)	.56	0.046 (0.045)	.31	.60	-0.143 (0.038)	.00	0.001 (0.035)	.98	.00
Parent Lacks HS Degree	0.126 (0.042)	.00	0.093 (0.055)	.09	.60	0.197 (0.046)	.00	0.185 (0.042)	.00	.77
Girl	-0.206 (0.028)	.00	-0.182 (0.037)	.00	.55	-0.217 (0.031)	.00	-0.202 (0.028)	.00	.64
Parental Age	-0.010 (0.003)	.00	-0.005 (0.004)	.20	.22	0.000 (0.003)	.99	0.009 (0.003)	.00	.00
Family Size	0.012 (0.013)	.37	0.139 (0.018)	.00	.00	0.021 (0.015)	.14	0.033 (0.014)	.01	.41
Constant <sup>b</sup>	0.146 (0.148)	.25	-0.424 (0.171)	.01		1.864 (0.143)	.00	1.452 (0.132)	.00	
Adjusted R <sup>2</sup> (# obs)	.05		.03		3012	.04		.03		3287

<sup>a</sup> Test of hypothesis that the coefficient in the parent-regression is equal to the coefficient in the child-regression.

<sup>b</sup> Boy in a two-parent, non-poor family with a mother (usually) under age 35 and a HS degree or more.

**Table 1-A**  
**Construction of NLSCY Outcome Scores**

Hyperactivity Disorder  <u>Score Range:</u> 0-16	1. Can't sit still, is restless or hyperactive 2. Fidgets 3. Is distractible, has trouble sticking to any activity 4. Can't concentrate, can't pay attention for long 5. Is impulsive, acts without thinking 6. Has difficulty awaiting turn in games or groups 7. Cannot settle to anything for more than a few moments 8. Is inattentive
Conduct Disorder  <u>Score Range:</u> 0-16	1. Destroys his/her own things 2. Gets into many fights 3. Destroys things belonging to family or other children 4. When another child accidentally hurts him/her (such as bumping into him/ her, assumes the child meant to do it, then reacts with anger and fighting 5. Physically attacks people 6. Threatens people 7. Is cruel, bullies or is mean to others 8. Kicks, bites, hits other children
Emotional Disorder  <u>Score Range:</u> 0-16	1. Seems to be unhappy, sad or depressed 2. Is not as happy as other children 3. Is too fearful or anxious 4. Is worried 5. Cries a lot 6. Appears miserable, unhappy, tearful or distressed 7. Is nervous, high-strung or tense 8. Has trouble enjoying him/ herself
Indirect Aggression  <u>Score Range:</u> 0-10	When mad at someone: 1. Tries to get others to dislike person 2. Becomes friends with another as revenge 3. Says bad things behind other's back 4. Says to others: let's not be with him/her 5. Tells the other one's secrets to a third person
Property Offence Score  <u>Score Range:</u> 0-12	1. Destroys his/her own things 2. Steals at home? 3. Destroys things of his/her family or other children 4. Tells lies or cheats 5. Vandalizes 6. Steals outside the home
School Performance  <u>Score Range:</u> 0- 5	Based on report cards, how is the child doing in how? 1. Very Well 2. Well 3. Average 4. Poorly 5. Very Poorly
Each outcome save school performance is an index. Each individual response is scored 0 = Never, 1 = Sometimes, 2 = Often. The sum of the scores is the index value. The wording of the actual questions is a bit more extensive than that indicated above.	



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